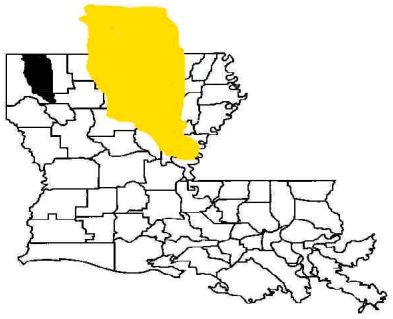
HIGHWAY 71/72 REFINERY
LOUISIANA

EPA ID#
LAD981054075



REGION 6
CONGRESSIONAL DISTRICT
04
Bossier Parish
Bossier City

Updated June 26, 2000

Site Description

Location: ! The Highway 71/72 Refinery Site is located in downtown Bossier City, Louisiana, about 2 miles east of downtown Shreveport and 1,800 feet north of the Red River. The former refinery site consisted of about 215 acres. The geodetic coordinates of the Site are 32°31.0' north latitude and 93°42.7' west longitude.

Population: ! Bossier City (population 52,721 in 1990); 3500 people currently live onsite, including about 370 children (U.S. Census Bureau, 1998).

Setting: ! The former refinery was operational from 1923 until sometime between 1944 and 1948. In 1950, dismantling of several groups of tanks in the refinery process area had begun. By 1955, a significant portion of the refinery process area had been dismantled and most tanks were leased to third parties. Between 1955 and 1967, various refinery operations were sold and removed.

! In 1966 and 1967, cleaning and clearing of former refinery equipment was reported to have occurred to prepare the Site for redevelopment (observations made during removal actions conducted onsite in 1997 and 1998 have documented that much debris and waste remains buried across the Site).

! Beginning in 1968 and continuing to the present, the Site has undergone development. Currently, private residences, commercial buildings, and light industrial establishments cover a large portion of the Site. Based in part on digital photogrammetric data, approximately 52% of the area within the Site is covered by pavement or buildings. Additionally, approximately 10% of the Site has limited accessibility for future development (i.e., the I-20 right-of-way).

Hydrology: ! The Red River flows in a south to southeasterly direction across Bossier and Caddo Parishes and eventually empties into the Mississippi River. The uppermost occurrence of groundwater is in the Quaternary age alluvial deposits of the Red River. Groundwater in the alluvial deposits is generally under artesian pressure. The Red River Navigation Project, which involved the installation of multiple locks and dams along the Red River, has raised the potentiometric surface at the Site. Groundwater table fluctuations associated with seasonal water level variations in the Red River are much less pronounced than historically, as a result of the lock and dam system

constructed, but still average about 10 ft/yr.

Wastes and Volumes

! Concentrations of lead as high as 11,700 parts per million (ppm) were identified in some surface soils accessible to the public, prior to the surface soil removal action which was initiated in September 1996. During this action, lead concentrations were documented as high as 41,600 ppm in shallow soils. Reference Samples collected at the two foot depth contained even higher lead concentrations (high detection of 155,000 ppm).

! Light non-aqueous phase liquids (LNAPLs) floating on top of the shallow groundwater have been estimated from 509,000 to 1,234,000 gallons directly over the former refinery process area of the Site. Other smaller plumes have not been well delineated to date.

! Hydrocarbon gases were detected in soils comprising over 25% of the former refinery site.

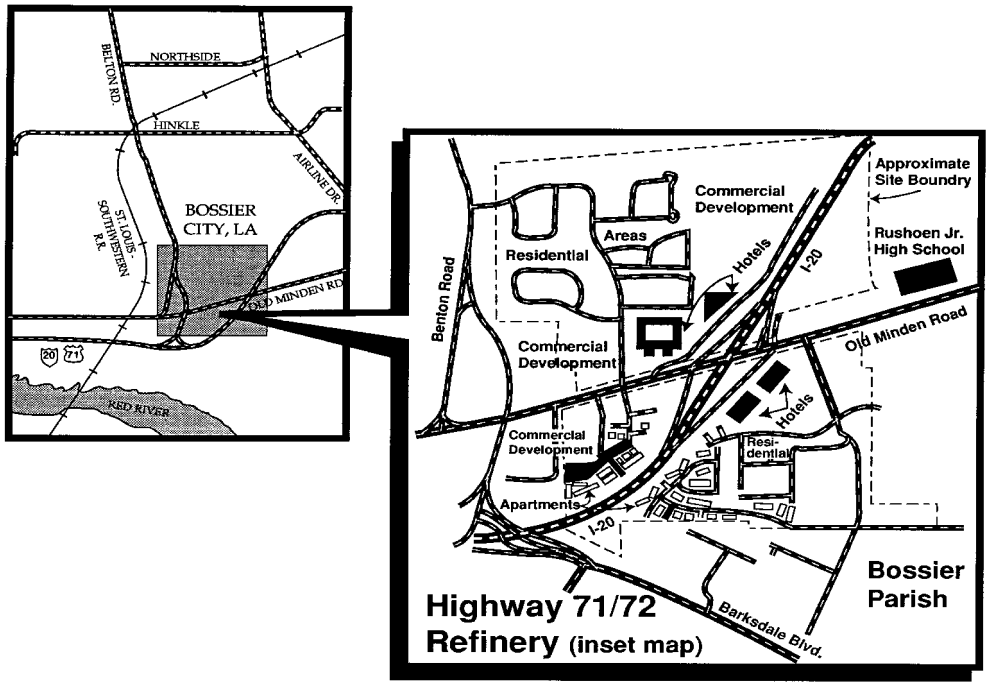
! Tar-like material containing polycyclic aromatic hydrocarbons oozes to the surface in some residential and commercial areas.

! Benzene concentrations in indoor air of some units onsite have been measured instantaneously as high as 252 parts per billion by volume (ppbv) by the Trace Atmospheric Gas Analyzer (TAGA). However, instantaneous readings were merely taken in order to identify possible sources of benzene in indoor air. When household sources could not be identified at the time of the TAGA sampling, 8-hour time weighted samples were collected with summa canisters and tenax tubes to assess possible site related sources of benzene. Time weighted measurements by summa canisters (4 hour samples) and carbon tubes (12 hour samples) have indicated levels of benzene as high as 97 ppbv and 150 ppbv, respectively (Note: both high values located in the same location).

Site Assessment and Ranking

NPL LISTING HISTORY
Site HRS Score: 50.00
Proposed Date: 2/13/95
Final Date: Pending
NPL Update: No. 18

Site Map and Diagram



The Remediation Process

Site History:

! The Highway 71/72 Refinery Site operated as a refinery from 1923 to some time between 1944 and 1948 producing home heating oil and fuel oils. From 1947 through the mid-1960's, the area served as a petroleum storage and distribution facility. During its years of operation, the refinery expanded from 143 acres in 1939 to a maximum of 215 acres in 1955. The area within and surrounding the Site was also once a significant producing oil field and today several abandoned and producing wells exist in the area.

! The Louisiana Oil Refining Corporation (LORECO) built the former refinery after acquiring the Site from the Invincible Oil Corporation in 1923. The Arkansas fuel Oil Company acquired the refinery around 1936, and operated it until approximately 1953. At the time, the refinery was located north of the Kansas City Southern and south of the Illinois Central Gulf rail lines in Bossier City, Louisiana. In 1953, Arkansas Fuel Oil Company merged into Arkansas Natural Gas Corporation, and the name was changed to Arkansas Fuel Oil Corporation (AFOC). Effective January 1, 1961, AFOC's

name was changed to Cities Service Oil Company (CSC). In 1982, CanadianOXY Offshore Production Company acquired CSC.

! In 1986, the site was evaluated using the Hazard Ranking System (HRS) model, but scored below the score necessary to be an NPL candidate (28.5). Therefore, in 1988, EPA referred the site to the Louisiana Department of Environmental Quality (LDEQ) for action under State authority.

! In 1990, forty-seven (47) families were evacuated from an onsite apartment complex due to indoor air quality problems related to hydrocarbon gas seepage. Several units are still unoccupied. Two hotels periodically close several first floor rooms due to customer complaints of noxious odors and headaches.

! During 1991 through 1994, the Site was investigated by OXY USA, Inc. (OXY) under an administrative agreement with LDEQ. The investigation included surface and subsurface soils, soil gas, indoor air, surface water, groundwater and hydrocarbon liquid samples.

! In 1992, EPA conducted an Expanded Site Inspection to reevaluate the site using the revised HRS model.

! In 1994, OXY and LDEQ announced that studies showed no emergency health risks onsite, but potential for long term health risks was recognized. LDEQ asked EPA to complete a site evaluation under Federal authorities and resources.

! In 1995, the Highway 71/72 Refinery Site was proposed for addition to the National Priorities List (NPL) of Superfund sites, scoring 50 under the new HRS model.

! EPA's proposed addition of the site to the NPL in February 1995, resulted in strong criticism from members of Congress involved in reauthorization of the Superfund law, from OXY USA, and from Bossier City officials. OXY submitted over 2,000 pounds of comments in opposition to the proposed NPL status.

! Special Notice letters were sent to OXY on June 5, 1995, requesting a good faith offer to remove lead contaminated soils and complete hydrocarbon contamination studies.

! Congress's July 1995 appropriations legislation chided EPA for adversely affecting the Bossier City economy and for requiring unnecessary additional tests.

! In a meeting facilitated by Congressman McCrery's staff on July 21, 1995, EPA met with OXY, LDEQ, and Bossier City officials to discuss concerns of all parties. As a result of this meeting, EPA proposed an 'Agreement in Principle' among participants.

! By September 10, 1995, all four parties (EPA, LDEQ, OXY, and Bossier City) signed the Agreement In Principle. The Agreement In Principal provided for the parties to work towards the following:

> p an Administrative Order on Consent (AOC) for OXY to remove surface soils with more than 500 parts per million (ppm) lead.

- a judicial Consent Decree (CD) that provides for pumping, treatment, and monitoring of light non-aqueous phase liquids (LNAPLs) floating on top of the groundwater; corrective action at living units with indoor air pollution caused by the site; and a trust fund to pay for disposal of wastes uncovered in the future.

- deed restrictions for groundwater use at the Site for human consumption and/or irrigation purposes.

! On October 6, 1995, EPA transmitted to OXY USA Inc. a draft AOC for OXY to conduct a removal action for lead contaminated surface soils at the Site. Negotiations with OXY on the draft AOC resulted in extended discussions and eventually failed to progress.

! On July 31, 1996, EPA issued a Unilateral Administrative Order (UAO) requiring CanadianOxy Offshore Production Co. (COPCO), OXY's indemnitor, to remove lead-contaminated surface soils (top 2 feet) where concentrations of lead exceeded a 500 parts per million (ppm) in high access areas (e.g., public areas where children played). The UAO targeted removal of three (3) "Confirmed Removal Areas" and further specified requirements for additional investigative sampling in seven (7) "Potential Removal Areas". On August 16, 1996, EPA issued an amendment to the UAO requiring sampling for six (6) additional Potential Removal Areas.

Health Considerations:

! All known areas where exposure to lead in surface soils could potentially present health threats to children have been addressed under removal authority. The Soil Removal Action was conducted under a Unilateral Administrative Order. Although initial removal activities were completed in March 1997, confirmation sampling to determine specific removal area boundaries was not conclusive for EPA to close out every removal area (i.e., those were excavation stopped due to obstructions, but no samples were collected on the far side of the obstruction). Therefore, additional confirmation sampling was conducted in February and April of 1998 to verify those removal area boundaries which were determined to be questionable and examine surface soils directly above deeper soils known to have high lead content (5 "data gap" areas). In June 1998, boundaries were expanded and 2 additional areas (data gap areas) were addressed by the removal authority. EPA anticipates closure of the UAO and Soil Removal Action by the end of July 1998.

! Contaminants in indoor air of occupied dwellings potentially presented an imminent and substantial endangerment to human health. The Indoor Air Removal Action conducted in 1997, has addressed the imminent and substantial threats identified in 8 occupied dwellings to date. In these 8 units, engineering controls were implemented to reduce and/or prevent an occupant's exposure to contaminants of concern (i.e., sealing cracks in foundations and penetrations and installing or modifying ventilation systems reduced levels of benzene to below the action level of 10ppbv). Although the Indoor Air Removal Action has addressed those threats which were known to exist at the time of sampling, the potential still exists for exposure to occur in occupied units where conditions may change with time and contaminants could potentially migrate into indoor air of some dwellings from underlying source areas. In fact, 2 of the 8 units have had additional work done in order to prevent indoor air levels from exceeding the action level established for the Removal Action.

! LNAPLs in groundwater and areas of high soil gas concentrations (possibly generated from dissolved groundwater plumes and/or leading edge of LNAPLs plume) may be sources of indoor air

pollution.

! Buried wastes and contaminated soils (not addressed by the Soil Removal Action) may present a health threat if exposed and left on the surface or improperly disposed of in the future.

Other Environmental Risks:

! Ecological risks are indeterminate at this time due to the urban nature of the site.

Record of Decision

Signed: N/A at this time.

Community Involvement

! Community Involvement Plan: 12/95
! Open houses and workshops: 2/95, 6/95, 8/95, 1/97, 7/97, 9/97
! Original Proposed Plan Fact Sheet and Public Meeting: Not Yet Issued.
! Original ROD Fact Sheet: Not Yet Issued.
! Milestone Fact Sheets: 2/15/95, 01/07/97
! Citizens on site mailing list: 1786
! Site Repository: Bossier Parish Library, 2206 Beckett, Bossier City, LA

Technical Assistance Grant

! Availability Notice: March 1995
! Letters of Intent (LOI) Received: 1/26/98 - Alliance League of Environmental Restoration Task Force sent in A TAG application in lieu of a LOI.
! LOI News paper Notice: 3/9/98
! Final Application Received: Application from the Alliance League of Environmental Restoration Task Force was denied by EPA.
! Grant Award: N/A
! Current Status: Recent inquiries, however, the grant has not yet been awarded.

Contacts

! **Remedial Project Manager:** Kathleen Aisling, 214-665-8509, EPA (6SF-LT)
! **State Contact:** Charles Andrews, LDEQ, 225-765-0487
! **Community Involvement:** Kathleen Aisling, 214-665-8509, EPA (6SF-LT)
! **Attorney:** Jim Costello, 214-665-8045, EPA (6SF-DL)

! **PRP Prime Contractor:** Conestoga Rovers Associates, Ontario Canada

Enforcement

! **Unilateral Administrative Order Docket No. CERCLA 6-08-96:** Soil Removal Action to address lead in surface soils. Issued to CanadianOxy offshore, Production Company on 07/31/96 with an Effective Date of 08/20/96. Amended on 08/16/96 with new effective date of 08/26/96.
! **Unilateral Administrative Order Docket No. CERCLA 6-03-97:** Indoor Air Removal Action to address benzene in indoor air of occupied units onsite. Issued to CanadianOxy offshore, Production Company on 012/20/96 with an Effective Date of 01/06/97. Amended on 02/13/97 with no change to the Effective Date (01/06/97).

Present Status and Issues

! PROPOSED PLAN OF ACTION: The EPA Remedial Investigation (RI) which evaluated existing information was completed in February 1999. The Feasibility Study (FS), EPA's evaluation of cleanup alternatives, was completed in September 1999. EPA's Proposed Plan of Action which describes EPA's preferred method for addressing site contamination was issued on May 12, 2000. A public comment period was held from May 12, 2000, to June 12, 2000. The EPA expects to issue the Record of Decision for the Site in the fall of 2000.

! LIMITED SAMPLING, FEBRUARY 2000: The EPA has completed the sampling of soil, indoor tap water, and indoor dust at a limited number of residential properties in late February 2000. These sample results will be used to calculate a site-specific cleanup level for lead in site soils. The EPA appreciates the cooperation from the community during this sampling event, especially from those residents who allowed indoor sampling to take place in their homes.

Preliminary results of the sampling show that no residential yards had an average lead concentration above 500 ppm. Preliminary results of the indoor dust samples and the tap water samples show that these media are also well below EPA standards. Based on the data, no cleanup will be necessary for the shallow surface soil, the indoor dust, or the tap water in these homes at this time. Once that data set is finalized, the EPA will send the data from each home to the residents of that home.

! SOIL REMOVAL ACTION: Actual removal of lead-contaminated surface soils began on October 8, 1996, and backfill and grading (restoration) activities were completed on February 19, 1997. Approximately 11,000 tons of lead-contaminated soils were removed at that time. Boundary verification sampling has since been conducted for certain removal areas where obstructions were encountered, and excavation ended without confirmation sampling on the far side of the obstruction (e.g., parking lot, building, etc.). This effort was determined to be necessary upon review of the draft Final Report for removal activities (which included all the data collected during the removal). Results from the verification sampling were used to expand boundaries and remove an additional 1,560 tons of lead-contaminated soil in June 1998. This effort will bring a close to the Soil Removal Action. The soil removal action was completed in December 1998.

! INDOOR AIR REMOVAL ACTION: From June 4 to June 28, 1996, EPA conducted an indoor air

screening and sampling inspection at approximately thirty (30) onsite single family residences, four (4) multi-family apartment complexes, three (3) hotels, and one (1) office building for indoor airborne contaminants--92 individual units in all. On December 22, 1996, EPA issued a UAO to COPCO for mitigating benzene-contaminated indoor air in certain occupied units where benzene concentrations exceeded 10 parts per billion by volume (ppbv). The UAO also required testing in other units to determine if corrective measures were needed. Glenn Springs Holdings, Inc. (GSHI), COPCO's representative, began indoor air abatement activities on January 21, 1997. To date, a total of 8 units have had to have corrective measures taken. Corrective measures were completed for these 8 units on May 28, 1997. Additional measures have recently been implemented at 2 of these 8 units after Post Corrective Measure Monitoring Inspections indicated that action levels had been slightly exceeded.

! In early 1997, GSHI initiated a voluntary Design Demonstration Project to evaluate LNAPLs recovery onsite. GSHI, EPA, and LDEQ are working together to determine the extent of LNAPL recovery possible at this Site.

Benefits

! The Soil Removal Action reduced the potential threat to children living and/or playing on the Site who could have contacted high levels of lead in surface soils.

! The Indoor Air Removal Action reduced the potential threat to occupants of 8 onsite units who were being exposed to benzene concentrations in indoor air above the action level of 10 ppbv.

! The Pilot Demonstration Project for LNAPLs Recovery, being conducted voluntarily by GSHI, will help all parties determine the feasibility and/or effectiveness of various long term response actions being evaluated at the Site.